



### Lesson Summary

Pollution is threatening the ocean, from toxic waste to all sorts of plastic, forming a hazard for all marine wildlife. Creating a toxic hazard for marine wildlife. In this lesson we discuss the issues of pollution, how it ends up in the ocean and it's impacts on marine wildlife.

This lesson will take approx. 45 mins.



### Subjects relevant to

English, Geography, History, Science and Social Science.

### Learning objectives

From this lesson students will:

- Learn about ocean pollution.
- Understand how it harms marine wildlife.
- Discuss ways they can help stop ocean pollution happening.

### Preparation

- This lesson has been designed to provide a complete lesson, but can be stopped at any time and split over multiple lessons, should you wish to include your own discussion/questions or incorporate the lesson activities.
- Each lesson has a lesson activity sheet with ideas on additional learning activities, which can be included in the lesson to enhance the learning experience.
- Depending on whether students are working in a classroom or remotely, you can choose to discuss questions in the class or use the online learning app.
- This digital lesson has an interactive option called student devices. If you choose this option ask the students to bring their mobile phones or tablets to the lesson.
- Should you choose the interactive option, it will run a quiz during the lesson. Recommendation: only use this interactive option in classes of up to 30 students.
- Students can sign up on their mobile device to the [www.LessonUp.app](http://www.LessonUp.app). They will be asked for a PIN code (this will appear automatically on slide 3 and will also show at the bottom of the screen). Students who sign up under a false name may be removed by the teacher.
- Students who do not have a mobile device can join the quiz with another student.
- If student devices is turned ON, you can opt to turn the sound and the share screen ON or OFF. Further on you can choose if you want to 'show ranking after each quiz' question. Doing so will create a competitive element, but it can be distracting. Recommendation: turn the 'show ranking after each quiz' OFF.
- The abovementioned options will also show if you click on the PIN code at the bottom of the screen.



### Lesson plan

#### Slide 1 Introduction

This lesson is provided by Sea Shepherd. Sea Shepherd is a marine conservation organisation with a mission to protect the ocean and marine wildlife. Sea Shepherd works globally on a range of issues impacting the ocean, running numerous direct action campaigns each year. Ocean pollution is one issue Sea Shepherd is working on.



#### Slide 2 Lesson action icons

During the lesson we will use these icons to identify the learning actions.



#### Slide 3 Ocean pollution

During this lesson we will look at why pollution is an issue and how it ends up in the ocean.

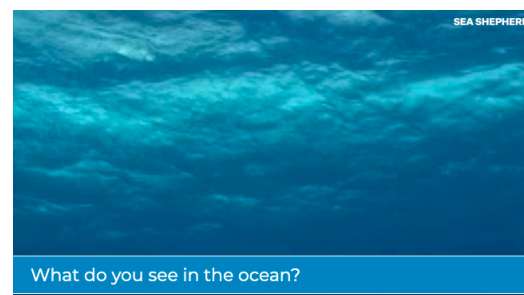


#### Slide 4 What's in the ocean?

Ask students:

When you think about swimming in the ocean and you dive down to see what is there, what marine animals do you think you would see?

What else do you think you would see?





### Slide 5 What's in the ocean?

When we think about the ocean we think about coral reefs, whales, sea turtles, dolphins and sharks, all swimming around in the beautiful blue ocean.



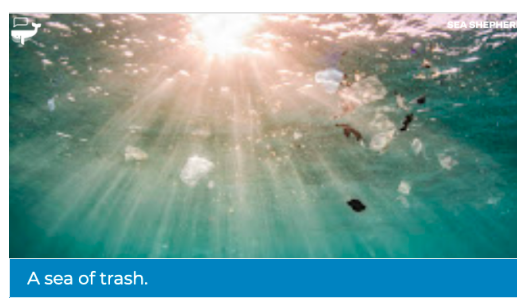
### Slide 6 A sea of trash

But it is not always so beautiful in the ocean.

Ask the children:

Would you expect to see this in the ocean?

Talk about what items they can see and which items don't belong in the ocean.



### Slide 7 Trashed beaches

Ask the children:

Would you expect to see this on the beach?

Talk about what items they can see on the beach and what doesn't belong there.



### Slide 8 What would marine animals think?

What do you think happens if marine animals find trash in the ocean?

Marine wildlife don't know what trash is. Can you imagine being a baleen whale lunge feeding and ending up with plastic bags and other rubbish being scooped up with krill or fish.

Discuss with them what might happen and why it is not good for animals to eat plastic.

Some other examples to use:

- Sea turtles finding old plastic bags that look like jellyfish.
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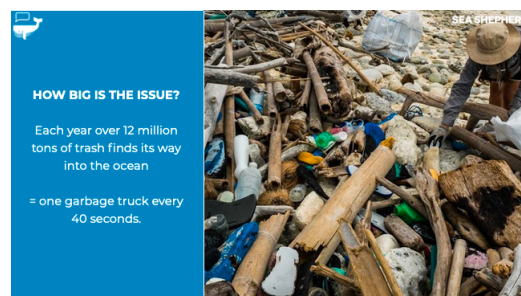


- Little fish eating bits of plastic that look like food. Like micro beads or glitter.
- Sea birds mistaking plastic for fish.

### Slide 9 How much ends up in the ocean?

Every 40 seconds a truck load of trash goes into the sea. That's a lot of trash going in to the ocean.

Over 12 million tonnes of plastic a year, which equals a garbage truck load every 40 seconds. Soon it might be two truck loads a minute.



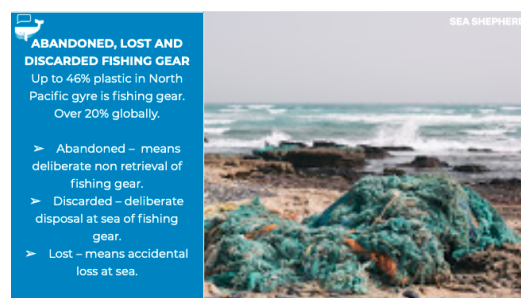
### Slide 10 Ghost nets

Not only does trash end up in the ocean, but fishing nets and lines do to. They are lost overboard or dumped by fishing vessels.

The nets end up floating freely in the ocean, becoming ghost nets that trap unsuspecting marine animals.

Imagine marine mammals swimming and all of a sudden find themselves caught in these nets and lines, unable to get out without help.

Each year 640,000 tonnes of fishing gear is lost or discarded at sea from commercial fishing vessels.



### Slide 11 How does it end up there?

Ask students

“How do you think trash ends up in the ocean?”







### Slide 12 How does it end up in the ocean?

#### Down the drain

Some plastics are washed down the drain, such as micro plastics like micro beads, glitter and micro fibers from clothes.

Ask students what else might get washed down the drain that is bad for the ocean?

- Household chemicals – cleaning products, paint, weed killers.

#### Dumped on streets, parks or school grounds

The wind and rain moves it into stormwater drains, creeks and rivers leading to the ocean or other bodies of water.

Ask students what they have seen dropped on to the streets and parks that could end up in the ocean?

- Cigarette butts are a huge issue. They contain hundreds of chemicals and plastic. Trillions of them are thrown away each year, with large numbers ending up in the ocean.



### Slide 13 How does it end up in the ocean?

#### Left on beaches

Visitors to beaches leave behind their rubbish, which is then washed into the ocean with the tide, or blown into the ocean by the wind.

#### Tourists leaving rubbish behind

Some tourist destinations are island nations who have limited facilities to manage waste. Visiting tourists leave behind their waste for locals to remove. Rubbish dumps are often close to the water, so it can blow into the ocean.

Ask students what they have seen dropped on the beach that could end up in the ocean?

- Plastic food packaging and drink containers.



### Slide 14 How does it end up in the ocean?

Intentionally dumped into the ocean by people or business in order to save money.

Instead of disposing of rubbish properly it is dumped into waterways or directly into the ocean.

#### Dumped into waterways by communities

Not all countries are set up with proper waste management. There are communities with no waste removal process so they dump their rubbish into rivers for it to be taken away.





### Slide 15 How does it end up in the ocean?

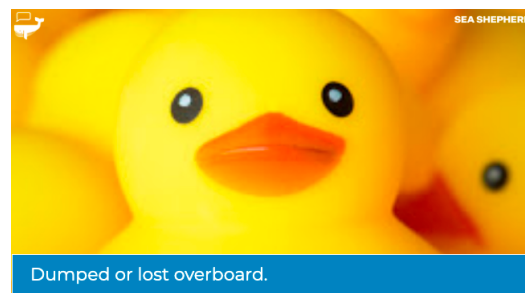
Thrown overboard from ships

While ships are supposed to manage their waste and offload it in port, some are still guilty of dumping it overboard when in international waters, where they think no one is watching.

Lost overboard from cargo ships – during storms containers go overboard.

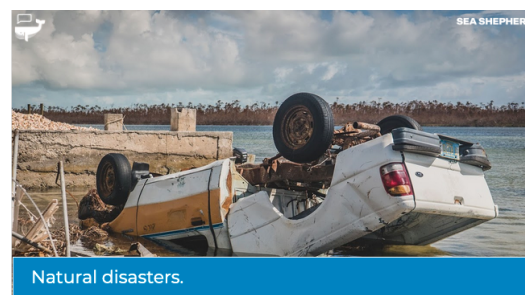
During severe weather events and rough seas it is possible for shipping containers to come loose and topple overboard. They may sink, or break open and the contents wash into the ocean, or they may wash up on beaches.

In 1992 a cargo vessel lost a container of 28,000 yellow plastic ducks in North Pacific ocean. The container broke open and the yellow ducks floated away. They are still washing up ashore everywhere around the world today.



### Slide 16 How does it end up in the ocean?

During storms and floods household items get washed away in waterways and end up in the ocean.



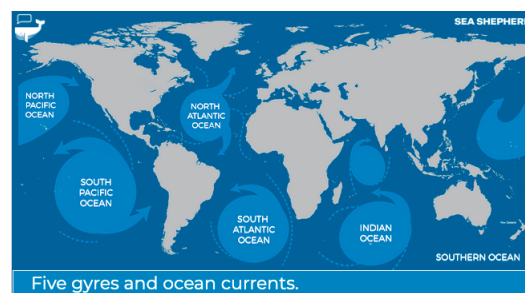
### Slide 17 Five gyres and ocean current

Once trash and pollution reaches the ocean it is caught up in ocean currents and will be moved out into the gyres.

An ocean current is a movement of water. There are currents along most coastlines that move water along and out to sea.

Gyres are areas where the ocean currents meet. There are five main gyres in the ocean.

When trash enters the ocean it moves from the coast and is pushed along, it might find its way into one of these gyres in the middle of the ocean, or it could end up on a beach in another country.





### Slide 18 How can we make a difference

We know what is ending up in the ocean, how it finds its way there, and how harmful it is to marine animals, so what can we do to stop this happening.

Ask students:

What are some of the ways you think we can stop trash ending up in the ocean, especially plastics?

These are some suggestions to discuss with students.



### CHANGING WHAT WE DO

By thinking about what we do and use we can help make a difference and reduce our waste.

#### 1. What we buy and consume

**Refuse** – When offered these items just say no. For instance plastic straws or plastic bags.

#### **Reduce**

Reduce is simple if you don't really need it, don't take it. Avoid plastic wrappings and balloons etc, ending up in the ocean and harming the environment.

#### **Reuse**

Instead of single use plastic products that could end up in the ocean, how about choosing reusable items. Like using a reusable water bottle and cutlery rather than disposable plastic. Encourage your parents to use items like coffee cups and travel mugs for when they buy coffee rather than disposable cups.

#### 2. What we do with items that are broken or damaged.

- First try to repair – why buy new when you can simply learn how to repair things.
- Second repurpose – if you can't repair an item then think of new ways you can use it. Old sheets and clothes for example can be used to make bedding for orphaned and injured wildlife.
- Thirdly refinish – would a new coat of paint or polish make it useable again.

#### 3. What we do with items we no longer need.

- Rehome - if an item is in good condition but you don't need or want it anymore, like toys you have outgrown. Then they could be donated to a charity for someone who has very little, they can be sold/swapped at swap markets, or you can have your own swaps with family and friends.





- Recycle - can't repurpose or repair it, then recycle as much as you can. Make sure you separate out your rubbish between what can go into the compost bin, recycling bin and normal waste. The less you send to dump the better, especially plastics.

Some plastics can be returned for recycling at stores, like ink cartridges, others can be donated to special programs where they can be converted for 3D printing. Such as programs to make items that help communities, like making artificial limbs for children in need.

The more we refuse single use plastic items and recycle what we can, the less demand there is to produce new products and it also lessens the chance it will end up in the ocean, which could help save thousands of marine animals each year.

It is estimated only 9% of the plastic ever produced has been recycled.

#### **4. What we do with waste / marine debris found on land or in the ocean.**

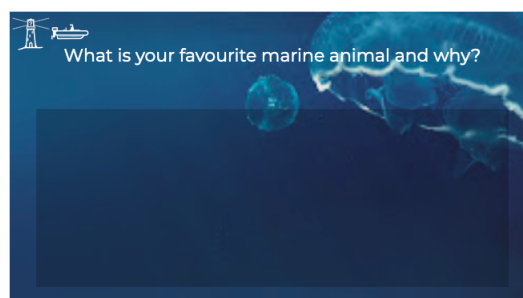
- Remove rubbish from parks, schoolyards and beaches. Every bit you pick up helps prevent rubbish from ending up in drains and waterways and ultimately ending up in the ocean.
- Help recover marine debris from waterways and the ocean. People join in dives to remove rubbish from around jetties / piers, reef systems and the seafloor.

Note - ensure you obey the laws, some areas have restrictions on removing rubbish, like fishing nets, to ensure the reef or ecosystem is not damaged.

#### **Slide 19 What is your favourite marine animal?**

Ask students to answer the following question using [www.LessonUp.app](http://www.LessonUp.app) or write on paper:

"What is your favourite marine animal and why?"

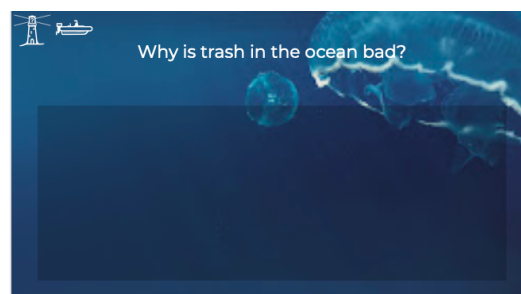




### Slide 20 Why is trash in the ocean bad?

Ask students to answer the following question using [www.LessonUp.app](http://www.LessonUp.app) or write on paper:

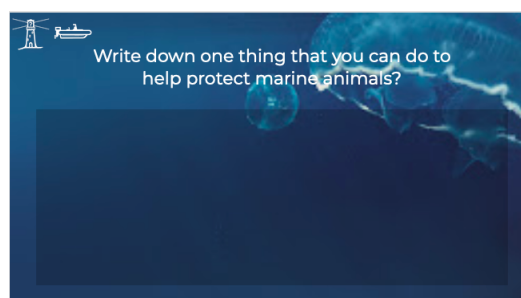
“Why is trash in the ocean bad?”



### Slide 21 What can we do to protect marine animals?

Ask students to answer the following question using [www.LessonUp.app](http://www.LessonUp.app) or write on paper:

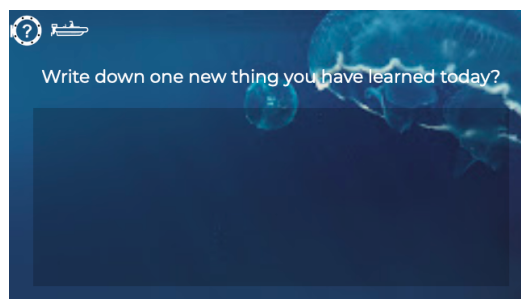
“Write down one thing that you can do to help protect marine animals?”



### Slide 22 What did you learn?

Ask students to answer the following question using [www.LessonUp.app](http://www.LessonUp.app) or discuss in the classroom:

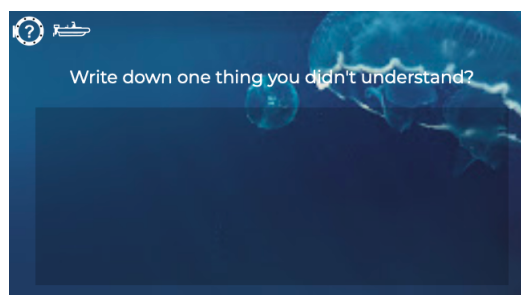
“Write down one new thing you have learned today?”



### Slide 23 What don't you understand?

Ask students to answer the following question using [www.LessonUp.app](http://www.LessonUp.app) or write on paper:

“Write down one thing you didn't understand?”





### Slide 24 Learning activities

Sea Shepherd Lesson Activity Sheets provide additional lesson activities or discussion topics to expand the learning experience.

Optional fun video.

Show this video (3.14 mins), which shows a humpback whale calf and mum playing with dolphins.

<https://www.youtube.com/watch?v=ETvZl1hjVVE>



### Slide 25 Close



### YOUR FEEDBACK

We value your feedback and would be pleased to hear your thoughts about this lesson and activities. Any comments, suggestions or requests for further information can be sent to [education@seashepherdglobal.org](mailto:education@seashepherdglobal.org).